



Season 3 Episode 6 – Hessian Fly Outbreaks

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Announcer:

The Alabama Crops Report Podcast, your trusted information source for Alabama agriculture.

Scott Graham:

Hey everybody! Welcome into another episode of the Alabama Crops Report podcast. Scott Graham and Amanda Scherer behind the mic today. Amanda, how's it going?

Amanda Scherer:

It's going pretty good. You know, just getting amped up for cotton and peanut season. Small grains are kind of in full swing, and that's partly why we have our sometimes host. But now guest Dr. Katelyn Kesheimer, our small grains entomologist today. Katelyn, how are you doing?

Katelyn Kesheimer:

I'm good. I'm excited to be in the hot seat on the other side of the mic today. So glad to be here.

Scott Graham:

So like you mentioned, man are starting to get a little action, I guess you would say, in small grains. And Katelyn, that's why you're here today. What's the haps?

Katelyn Kesheimer:

Well, the haps is we are seeing a pretty scary as hessian fly outbreak. And I'm not laughing at the outbreak. I'm laughing at Scott's lingo here. But we're seeing a pretty big fashion fly outbreak that we haven't seen in a couple of decades, ranging from southern Louisiana all the way to southern Georgia and including southern Alabama. And we don't usually see this.

If I'm on the mike for small grains, it's usually with aphids or by the yellow dwarf Amanda you're familiar with. But this year we're seeing some pretty epic numbers of hessian fly in and wheat across the region.

Scott Graham:

So it kind of knows you're starting to get calls and stuff or hessian flies. What does the damage look like? What are some things that people are reporting in fields that do have Asian fly outbreaks?

Katelyn Kesheimer:

So the first sign is you just have thin or weak stands in really bad infestations. You might have complete lodging in the field if you started to fill out the green head. It's not filling out real gray or poor quality grain. Certainly start looking for some hessian fly signs at the base of the plant or cutting open stems and looking for those flax seeds. And depending on when the infestation started, if it was in the fall, you may have just completely dead plants or stunted growth similar to barley yellow dwarf. But without the coloring and lack of aphids there, if you have a fault, if you have a spring infestation, we may have just weak stems from the feeding. But if it is really severe, then you can lead. It can lead to lodging. And poor grain fill.

Scott Graham:

Is this localized, we think about Alabama or is it is it widespread?

Katelyn Kesheimer:

It's pretty widespread. We have reports from Louisiana, southern Louisiana, southern Alabama and southern Georgia. So, it seems pretty localized in the southern parts of the state, but it is across the entire southeast, as far as we're seeing right now.

Amanda Scherer:

And just for a point of reference for our listeners, you know, small grains, especially wheat, are kind of just starting to head out kind of throughout the state. You seem a little bit further along in south Alabama. Then as you kind of move north, you know, they're kind of at different growth stages. So keeping that in mind, you know, what exactly are hessian flies and how do they specifically damage wheat?

Katelyn Kesheimer:

So actually flies are a small mosquito like fly. They are reddish brown in color. But we have lots of different flies in wheat. And so don't panic if you start to see flies in your wheat. This is a very unique fly in that the damaging life stage is the larval stage or the maggot of the fly. So the adults will be flying around, but they're not the ones

causing damage. It's the larval form that's going to be in the stem or down at the base of the plant. Feeding away. And it could have been there as early as October or November and continuing to feed through the spring.

Scott Graham:

So what do you think, Katelyn? We're seeing more issues this year. Than we have in the last ten or 20 years.

Katelyn Kesheimer:

Well, it's probably a kind of a perfect storm of factors like we see with other insect pests. They really thrive in warm winters, which we've had now three in a row with the La Nina phenomenon going on and with high or above average rainfall, they can really do well. Another thing is in minimum or conservation tillage systems, they can overwinter and over summer in wheat stubble or other grain crop stubble. So all of those factors combined have have led to where we are right now, where we're seeing the biggest outbreak in at least ten or 20 years.

Scott Graham:

One thing you said there that I think is important and this is not fully related to this, but it is it's the warmer winter that we've just gone through, you know, and you get this question a lot. Did the winter kill the bugs? We're not going to have any you know, we're going to have less pressure this year. And in general, my answer is no. These insects are unfortunately adapted for our environments in general. But to steal a quote from Dr. Philip Roberts, our colleague at University of Georgia, if you look back this year, it was only cold when it was cold. You know, we had that hard freeze around Christmas where the whole state was frozen solid, basically.

But other than that, and then a cold snap we had a couple of weeks ago, it's really been warmer than average. And so we are I'm not saying that's going to mean we're going to have higher pressures of everything this year, but it could potentially impact some stuff. But I think that is important. Just to note that it got so cold there a couple of times, it felt like, man, this was a really cold winter, but it really wasn't.

Katelyn Kesheimer:

Yeah. And it's really important to note, too, with insects that they are cold blooded and they can't regulate their own temperature like we can. And so when it is warmer, they are more active and that means more feeding, more moving around, transferring from field to field and also more reproduction. So where we when we may have three or four generations in a year, if they can get started earlier than we may be closer to five or six generations a year. And similar to a lot of other insects, they are protected in the early season wheat. So they're going to be in in the base of the stem protected from that weather a lot of time. And then if we have cover crops or other residue on the ground that can even further insulate them or protect them from the you know, the very few cold days that we did have.

Amanda Scherer:

Stuck on that topic of those cold days. You know, we do have some of the small grains crops that have seen some damage from those brief freezes Does that make them a little bit more susceptible to the ash and flies? Because I know and with plant diseases, you know, just any plant stressor kind of makes them a little bit more

susceptible. And we're seeing a lot of, you know, just rust diseases, spot blotch and other things. But I don't know if that really.

Katelyn Kesheimer:

Yeah, certainly anytime you you compromise the integrity of the plant, it becomes more susceptible to insect feeding or disease. And with this pest in particular, hatch and Flies, they have a really unique adaptation where they can stay in their people form, which is between the maggot and the adult for weeks or even years if it's too cold. So they can just go into this hibernation state protected in the plant and survive cold weather and then reemerge as an adult and continue reproducing when the weather warms up.

Scott Graham:

And as far as and correct me if I'm wrong, but as far as when the infestation occurs, it was before those cold snaps, right? Yeah. It's really early in the year. When they're depositing those eggs and developing. So they're in there regardless.

Katelyn Kesheimer:

Yeah. We do see adult flights and egg laying in October, November in certain areas. And then once those eggs hatch, those really young larvae will crawl down to the base of the plant, start feeding and burrow into that stem and they will do that for anywhere from two to four weeks, depending on the temperature. And then they'll turn into that pupal form, but they're extra protected. So if you've seen a hessian fly pupa, they're also called flax seed because they use their skin from their larval form to make this kind of extra warm coat that they can hang in at the bottom of the base, the base of the plant. And then when it's warm enough after that cold snap, they can come out as adults. And once we've seen that and now this early spring, the adults are moving around and laying eggs. And so you can have an additional infestation from the next generation in the spring.

Scott Graham:

Can diseases do stuff like that?

Amanda Scherer:

They're not that cool. I guess, in terms of that. But, you know, you do get like, you know, secondary inoculum spread. So you have the primary spread come in. And then as it progresses throughout the plant, can it be it spreads from plant to plant, but not quite in terms of all those different growth stages. And one thing I thought it was interesting, Caitlin, when you were describing it, when they first started moving in, you know, something with barley yellow dwarf and aphids, you know, most of those insecticide sprays have to be done kind of in the fall or winter. So is there anything that producers can do now if they are seeing damage due to happen fly?

Katelyn Kesheimer:

Unfortunately, no, because that larval or pupal form is protected in the plant. We are going to be targeting the adults with insecticide applications, which we do see some effective control in the fall. But right now there are no spring rescue treatments of or insecticides that are going to be worth any money that you're putting into it because you're not going to get any control. And so, unfortunately, right now, the best thing producers can do is to check their fields, note the variety and start planning for fall of 2023.

Scott Graham:

You know, I've heard our weight soar too. Steve Lee talk about getting calls to fields with just overrun by weeds and his he said his recommendation is called me next year and we'll figure something out with that in mind like you were just saying what are some things that people who have had in fly outbreaks this year can do thinking for next year.

Katelyn Kesheimer:

Yeah. So the most effective and cost effective thing you can do is for idle selection. We do have a resistant gene that works against Asian fly, but because it is only one gene, we often do see them overcome that resistance. And so local varieties here in Alabama that are resistant, that work might be different than what you would plant in Louisiana versus Georgia. And so the best thing you can do is talk to us with extension talk to me, talk to our agronomists, our plant breeders, and we have recommendations for the best resistant varieties for your region. And planting that at the appropriate time in the fall is going to be your best control method. We also have recommended planting dates and you may have heard the term hessian fly free date because the earlier you plant, you do have more issues with hessian fly, but also with aphids and barley yellow dwarf because there's more time in the fall for those insects to be feeding and moving around and reproducing on the plants.

Amanda Scherer:

Just adding in a plug for our variety selection platform. It's a great opportunity for producers not only with small grains but other crops as well, to see how those varieties kind of perform in those areas. And we do have several of trials with small grains that are going to go into the database from this year in South and central and even north Alabama. And so that can be an excellent tool for producers to try and see which ones kind of do and those areas.

Katelyn Kesheimer:

Yeah, absolutely. And I know across the region a lot of our breeding trials and variety trials are where the damage was first reported. And so we'll have all those updated information ready to go out when producers start planting in fall of this year.

Scott Graham:

Another thing on that is and again, correct me if I'm wrong, I'm just a cotton entomologist, but these fashion flies as you mentioned, they can stay in the flax seed stage for years and so they can survive after harvest, all that kind of stuff in the stubble. So if you do have fields that had significant hair and flower pressure, maybe consider doing at least some light tillage in those fields, turn it over trying to kill those flax seed stage that way.

Katelyn Kesheimer:

Plowing the wheat stubble under is a great way to kill those preparing him or flax seed, like you said, burn down is moderately effective, but they can still survive underneath the soil line. And so you plowing your disc in your field under is going to be that great effective method to do that over the summer. And rotating out of wheat, if you have a continuous wheat and you plant into wheat stubble, say, with your cotton or your beans, after that, they can certainly survive until the next year. And so tillage and crop rotation are going to be your best friends in this case.

Amanda Scherer:

Are there any other crops that are susceptible to and flies?

Katelyn Kesheimer:

Yeah. So wheat is definitely their favorite, but they can infest triticale, barley and rye. But we don't see infestations in oats or white ryegrass and so those are going to be a safe bet if you are coming out of a major hatch and fly infestation in your other grain crops. As far as we know, we don't see any sort of patterns with infestation is worse at the edge of the field. But if you see lodging, certainly go into that plant, pull it up, look at the base, cut open the stem and see if you see those flax seeds. And with the infestations we're seeing this year, chances are you'll see several different pupa in the same plant and so look for those tiny little reddish brown flax seed looking like pupae area that are waiting to turn to adults and come out and start the next generation.

Scott Graham:

And part of what I've been hearing about it is it seems like it's typically going to be in fields that were planted around the same time. It's going to be more likely in fields that are the same variety.

Katelyn Kesheimer:

Yeah. If you have wheat and you haven't been checking it this spring, I'd recommend go take a look. And if you see some poor stands, you might have suspected poor fertilization or disease and double check and cut open those those stems and looks for look for some flax seeds. And if you have questions, then I'll be happy to chat with with people about varieties, selection and strategies that they can do so we don't run into this problem next year.

Scott Graham:

All right, Kevin. Well, thanks for the information today. Enjoyed chatting with you. Hopefully we know we're helping somebody out there. And again, I'd like to just remind one more time at this point in the year. Insecticides do nothing for this pest in particular. So, let's don't spray because we have an infestation of hessian flies. There's nothing we can do. As always, if we can ever be of any help, please don't hesitate to reach out and let us know and and I like to thank our listeners for listening to us. So, with that, will sign off and be looking for another episode coming soon.

Announcer:

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